

TENT COOPERATION TRE.

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

Date of mailing: 04 January 2001 (04.01.01)	
International application No.: PCT/AU00/00719	Applicant's or agent's file reference: 9099/27282
International filing date: 23 June 2000 (23.06.00)	Priority date: 24 June 1999 (24.06.99)
Applicant: JACKSON, Alan et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:
27 October 2000 (27.10.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer: J. Zahra Telephone No.: (41-22) 338.83.38
---	---

PATENT COOPERATION TREATY

10/019474

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

WRAY & ASSOCIATES
239 Adelaide Terrace
Perth, Western Australia 6000
AUSTRALIE

Date of mailing (day/month/year) 23 January 2002 (23.01.02)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 9099/27282	
International application No. PCT/AU00/00719	International filing date (day/month/year) 23 June 2000 (23.06.00)

1. The following indications appeared on record concerning:									
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor								
<input type="checkbox"/> the agent	<input type="checkbox"/> the common representative								
Name and Address WOODSIDE ENERGY LIMITED 1 Adelaide Terrace Perth, Western Australia 6000 Australia	<table border="1"> <tr> <td>State of Nationality AU</td> <td>State of Residence AU</td> </tr> <tr> <td colspan="2">Telephone No.</td> </tr> <tr> <td colspan="2">Facsimile No.</td> </tr> <tr> <td colspan="2">Teleprinter No.</td> </tr> </table>	State of Nationality AU	State of Residence AU	Telephone No.		Facsimile No.		Teleprinter No.	
State of Nationality AU	State of Residence AU								
Telephone No.									
Facsimile No.									
Teleprinter No.									
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:									
<input checked="" type="checkbox"/> the person	<input type="checkbox"/> the name								
<input checked="" type="checkbox"/> the address	<input type="checkbox"/> the nationality								
<input type="checkbox"/> the residence									
Name and Address METASOURCE PTY LTD 255 St George's Terrace Perth, WA 6000 Australia	<table border="1"> <tr> <td>State of Nationality AU</td> <td>State of Residence AU</td> </tr> <tr> <td colspan="2">Telephone No.</td> </tr> <tr> <td colspan="2">Facsimile No.</td> </tr> <tr> <td colspan="2">Teleprinter No.</td> </tr> </table>	State of Nationality AU	State of Residence AU	Telephone No.		Facsimile No.		Teleprinter No.	
State of Nationality AU	State of Residence AU								
Telephone No.									
Facsimile No.									
Teleprinter No.									
3. Further observations, if necessary: METASOURCE PTY LTD is now applicant for all designated States except US. WOODSIDE ENERGY LIMITED is no longer applicant for this International Application and therefore has been deleted from our records.									
4. A copy of this notification has been sent to:									
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned								
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned								
<input type="checkbox"/> the International Preliminary Examining Authority	<input checked="" type="checkbox"/> other: WOODSIDE ENERGY LIMITED								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Anne KARKACHI
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 January 2001 (04.01.2001)

PCT

(10) International Publication Number
WO 01/00755 A1

- (51) International Patent Classification⁷: **C10L 3/10**
- (21) International Application Number: **PCT/AU00/00719**
- (22) International Filing Date: **23 June 2000 (23.06.2000)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
PQ 1188 24 June 1999 (24.06.1999) AU
- (71) Applicant (*for all designated States except US*): **WOODSIDE ENERGY LIMITED [AU/AU]; 1 Adelaide Terrace, Perth, Western Australia 6000 (AU).**
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **JACKSON, Alan [AU/AU]; Woodside Energy Limited, 1 Adelaide Terrace, Perth, Western Australia 6000 (AU). AMIN, Robert [DK/AU]; Department of Petroleum Engineering, Curtin University of Technology, Bentley, Perth, Western Australia 6102 (AU).**
- (74) Agent: **WRAY & ASSOCIATES; 239 Adelaide Terrace, Perth, Western Australia 6000 (AU).**
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— *With international search report.*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **NATURAL GAS HYDRATE AND METHOD FOR PRODUCING SAME**

(57) Abstract: A method for the production of the natural gas hydrate characterised by the steps of: combining natural gas and water to form a natural-gas water system and an agent adapted to reduce the natural gas-water interfacial tension to form a natural-gas water-agent system, allowing the natural gas-water-agent system to reach equilibrium at elevated pressure and ambient temperature and reducing the temperature of the natural gas-water-agent system to initiate the formation of the natural gas hydrate.

WO 01/00755 A1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00719

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl. ⁷ : C10L 3/10
According to International Patent Classification (IPC) or to both national classification and IPC
B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols) C10L 3/10, 3/06, 3/00
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU:IPC as above
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT:(HYDRATE+ or CLATHRAT+) and (SULPHONAT+ OR SULFONAT+ OR SULPHAT+ OR SULFAT+)

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 536 893 A (Gudmundsson) 16 July 1996 See column(s) 2 lines 22-63, 5 lines 9-35, 7 lines 14-27, 9 lines 61-67 and Figure 1.	1-2, 7-19, 23, 27, 29-30, 32-34
X	WO 93 01153 A (Gudmundsson) 21 January 1993 See page(s) 2 lines 18-19, 7 lines 5-7, 9 lines 11-23, 10 lines 14-21, 14 lines 12-16 and Figure 1.	1-2, 7-19, 23, 27, 29-30, 32-34
X	WO 99 19662 A (MOBIL OIL CORPORATION) 22 April 1999 See page 1 lines 8-23.	1-2

☒ Further documents are listed in the continuation of Box C
 ☒ See patent family annex

* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
Date of the actual completion of the international search 15 August 2000	Date of mailing of the international search report 25 AUG 2000	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer JOHN DEUIS Telephone No : (02) 6283 2146	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00719

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 975 167 A (Niernan) 17 August 1976	
A	GB 2 309 227 A (British Gas plc) 23 July 1997	

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00719

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	5536893	NONE					
WO	9301153	EP	594616	NO	900395	NO	9000395
WO	9919662	AU	95825/98	EP	1025385	NO	20001861
		US	5964093				
US	3975167	AU	12577/76	CA	1034897	CA	1056327
		DK	1386/76	GB	1534768	GB	1534769
		NO	761027				
GB	2309227	AU	13865/97	CA	2214373	CN	1181806
		DK	1007/97	EP	820574	NZ	325367
		PL	322305	WO	9726494		
END OF ANNEX							

ATENT COOPERATION TREA
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 03 MAY 2001

WIPO

PCT

14

Applicant's or agent's file reference 27282	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU00/00719	International Filing Date (day/month/year) 23 June 2000	Priority Date (day/month/year) 24 June 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ C10L 3/10		
Applicant WOODSIDE ENERGY LIMITED et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 14 sheet(s).

3. This report contains indications relating to the following items:

- | | | |
|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input type="checkbox"/> | Certain documents cited |
| VII | <input checked="" type="checkbox"/> | Certain defects in the international application |
| VIII | <input type="checkbox"/> | Certain observations on the international application |

Date of submission of the demand 27 October 2000	Date of completion of the report 20 April 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer JOHN DEUIS Telephone No. (02) 6283 2146

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description, pages , as originally filed,
 pages , filed with the demand,
 pages 1-9, received on 14 February 2001 with the letter of 12 February 2001
- ☒ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages 10-14, received on 14 February 2001 with the letter of 12 February 2001
- ☐ the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-43	YES
	Claims	NO
Inventive step (IS)	Claims 1-43	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-43	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

None of the individual citations disclose all the essential features as claimed. Claims 1-43 are novel and involve an inventive step as they characterise a method for the production of the natural gas hydrate by combining natural gas and water to form a natural-gas water system, in that the natural gas-water system is allowed to reach equilibrium at elevated pressure and ambient temperature, and reducing the temperature to initiate the formation of the natural gas hydrate.

The closest art found was:

US 5536 893 A (Gudmundsson) 16 July 1996

WO 9301153 A (Gudmundsson) 21 January 1993

WO 9919662 A (MOBIL OIL CORPORATION) 22 April 1999

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 42-43 fails to meet requirements of rule 6.2(a).